BRIEF ON
1996/97 WATER HYACINTH CONTROL PROGRAMM
OF THE GOVERNMENT OF UGANDA

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By

The Water Hyacinth Unit (WHU)
Fisheries Department
Ministry of Agriculture, Animal Industry & Fisheries

P.o. Box 4
Entebbe

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BRIEF ON WATER HYACINTH CONTROL STATUS IN UGANDA

1. Invasion and Distribution

Water hyacinth, *Eichhornia crassipes*, was first noticed as a problem in Uganda on Lake Kyoga in 1987. Since then, the plant has continued to multiply at an alarming rate and to colonise extensive areas of shoreline not only on Lake Kyoga, but also on Lake Victoria, Lake Albert and on the River Nile. It is well established in some areas and is already blocking sheltered bays and inlets. The source has been identified as River Kagera.

2. Impacts of Water Hyacinth

Our lakes and rivers are host to the richest fisheries of the country with an estimated annual production of some 240,000 tonnes; and they are also important corridors for movement of passengers and goods. These are in addition to the benefits we get from the hydro-electric power and the domestic and industrial water supply requirements.

Water Hyacinth is fully recognised by the Government of Uganda as an environmental and socio-economic menace in our water ways that must be brought under control. The rapid reproductive potential and the efficient dispersal mechanisms of the weed have already enabled it to cover extensive nearshore portions of our water bodies. The extensive mats of water hyacinth currently carpeting fishing grounds, fish breeding, nursery and feeding beds in the lakes and rivers will in time drastically impair fish production. It already obstructs water transport, domestic water sources, hydro-electric power generation, touristic and recreational attractions; the weed also harbours disease vectors e.g. snails that transmit bilharzia.

3. Control Programme at National Level

An Emergency Action Plan for control of water hyacinth at National level is being implemented.

Objective

The objective of the Emergency Action Plan (EAP) is to reduce weed biomass to levels that do not pose socio-economic threat both for riparian communities and to vital national economic support infrastructure systems and health. The EAP one year control plan was formulated by the National Technical Committee on Water Hyacinth (NTCWH) under the auspices of the Agriculture Policy Committee (APC). It attracted mainly donor in-kind funding for 1996/97 financial year. The program is being implemented by the Water Hyacinth Unit in accordance with the yearlong Workplan (Annex I).

Strategy

The short term strategy of the EAP allows for fast relief and remedial measures such as:

(i) implementation of appropriate physical/mechanical methods where measures for control is urgently required (Kagera, Owen Falls Dam, Portbell, major landing sites nation-wide);

(ii) application of herbicides after a statutory permit from the National Environmental Management Authority (NEMA) following a chemical (herbicide) verification process.

Its long term strategy is to introduce bio-agents on Lakes Victoria and Albert; Rivers Kagera and Albert Nile through a mass rearing programme initially by the FAO intervention component of EAP and later under the Lake Victoria Environmental Management Programme (LVEMP). This strategy offers future cost effective, permanent and environmentally friendly solution to the problem.

All the above strategies for control will be monitored to ensure that the interests of the stake holders is met without negative impact on the environment that supports aquatic life including fish and other riparian biota inclusive of humans.

4. Control Activities

Manual/Physical Control Method

Manual control is on-going where possible through the affected organised communities who are continuously assisted, supervised and mobilised by the staff of the Unit. Groups involved are URC, UEB and fishermen organisations. Limited number of hand tools, and protective covers are being distributed to the organised fishermen communities through their LCs. An emergency action at the Owen Falls Dam was executed during the months of July to October 1996 following a resolute political will boost by H.E. the Vice President/Minister of Agriculture Animal Industry and Fisheries. It Involved manual removal by Special Services (SS), a veterans' business company contracted to support mechanical removal at the Dam. But it became apparent that at the rate of UShs. 50 million per month at the Dam only, this exercise could not be sustained. Implements imported for manual removal have been stranded at Nakawa (from Kenya) and Entebbe Airport (from South Africa) owing lack of resources to clear for Customs and stringent procedures in force. Arrangements are underway to procure more implements through the UNDP-intervention component of the EAP.

Mechanical Control Method

The Owen Falls intervention involved also the use of Excavators/backhoes, wheel loaders, crawler tractors and tipping trucks. It was estimated that 700 tonnes of weed was removed per day but about the same quantity of weed was also received at the dam per day.

Mechanical harvesting systems procured from Holland were assembled at Port Bell and deployed at the Dam. System output is presently put at around 138 truck loads per day with UFPEA assistance. Four Ten tonne 4WD truck meant for the harvesting systems are stranded at Jinja Customs awaiting tax clearance; also, another weed harvesting system through the Japanese Non-project Aid Grant is expected by March, 1997.

Machineries for the barrier on the River Kagera are being assembled in California for delivery to Uganda by Aquatics Unlimited. Meanwhile a temporary boom was constructed and is operating with mean output of 260 t per day using manual removal and trailer tractor transfer to dumpsites.

Biological Control Method

Implementation schedule incorporating the interventions by FAO/UN and USAID has been prepared and is undergoing review. Otherwise the weevils released in Lake Kyoga are establishing themselves. Multiplication of the bioagents is on-going at Namulonge Research Institute by researchers from FIRI and NAARI of NARO.

Chemical Control Method

Steps taken:

The following steps have been taken or are planned to ensure safe to health and the environment in respect to various multiple users and stake holders:

i) Certificates were issued by the National Chemicals Control Board (DCR, MAAIF) for all chemicals imported into Uganda after a scientific verification process. All Chemicals anticipated for chemical control of water hyacinth are already registered in Uganda and have been used in terrestrial ecosystems before to contain crop weeds. The Board certified the Rodeo brand of Glyphosate and Weedar 64 brand of 2,4-D to be used by the AU in-lake trials recently. The Board did not certify Reward brand of Diquat and hence AU will use only two chemicals for the in-lake trials.

ii) The Chemical Verification Committee of the National Technical Committee for Control of Water Hyacinth (NTCWH) conducted experiments to verify efficacy, safety to health and environment inclusive of fish. The draft report indicates no apparent effect of the chemicals on fish and other aquatic biota. The chemical exerted a high kill rate on the weeds (Av. 80%);

iii) Candidate chemical samples from MAAIF stock were submitted to the Desert Locust Control Organisation (DLCO) for matching the sample chemicals with the standard provided by the manufacturer. The samples were found to match. The applicators in DLCO are trained and experienced in case aerial spraying is considered in the near future. A ground scientific monitoring team was to be assembled at short notice;

iv) Aquatics Unlimited is to further conduct in-lake trials of the candidate herbicides. The herbicides (Glyphosate and 2,4-D) were imported. Certification by the Chemical Control Board is complete. NEMA has given the go-ahead for the trials but have not vetted the extend and scope of the study as they favour a wider spectrum of variables/parameters while Aquatics Unlimited contents on a very restricted one consisting only efficacy and water quality. A meeting of the core EIA committee was held by NEMA upon which a number of parameters were agreed on for the in-lake trials. AU were given two months in which to complete the in-lake trials w.e.f. mid November 1996.

Procedures being followed:

The following procedures are being followed to ensure effective integrated weed control that include use of herbicides; hence attendant safety to health and the environment in respect to various multiple users and stake holders:

i) An Emergency Action Plan (EAP) for the Control of Water Hyacinth in Uganda was sanctioned by the Agriculture Policy Committee (APC) in November 1995. It recommended an integrated approach including manual/mechanical, chemical and Biological approach to weed control;

ii) Since the EAP recommended actions that will have an impact on Environment, MAAIF/AU closely working with NEMA, produced a scoping document approved by an extended Scoping Committee to identify aspects of the EAP intervention that will require an Environmental Impact Assessment (EIA) as per the Uganda National Environmental Statute (20-22);

iii) The Chemical Intervention Aspect was found to require an EIA before any large scale application. Accordingly, NEMA authorised use of chemicals on the lake only for experimental purposes for the limited in-lake trials on restricted bays. Mechanical/manual control was deemed not to require an EIA before commencement of control operations. NEMA waived the necessity for an EIA before the Kagera AU mechanical/Manual removal intervention.

iv) MAAIF through Aquatics Unlimited (AU) drafted an Environmental Impact Assessment document soon to be reviewed by the Extended EIA Committee to be convened by NEMA. The final report of the Chemicals Verification Committee is to be an important input to EIA as well as further in-lake trial studies to be conducted by AU.

v) The EIA document will thence be subjected to public scrutiny and a certificate granted by NEMA for lake-wide herbicide application.

vi) On receipt of the NEMA certification, MAAIF/AU will then conduct herbicide administration on target weed biomass in Lake Victoria, Kyoga, Albert and Albert Nile.

5. Control Programme at International level

Resolution of the hyacinth problem in Lake Victoria will require close collaboration between all the states concerned: Uganda, the United Republic of Tanzania, Kenya (for Lake Victoria littoral), Burundi and Rwanda (for River

Kagera catchment area). The initiative already in place is being stepped up in order to formulate an agreement on an intervention programme involving all countries concerned. A regional meeting of decision/policy makers at Permanent Secretary level is scheduled after completion of the EIA by mid February 1996 in Uganda on the subject.

The Lake Victoria Environmental Management Project is scheduled to start on 1st November, 1996. An assurance was given at negotiations that National Steering Committees would be established in all the three countries for the water hyacinth control programme estimated at US$ 8.31 million for five years.

6. Constraints Affecting Control Programme

Slow realisation of the dangers posed by water hyacinth on the part of policy decision makers with respect to funding control activities. Also, cost of control is often prohibitive as to demand external donor financing. Comparative data exists on estimated cost implications of control methods.

Manual control	-	9m Ushs./ha
Mechanical	-	8.5m Ushs./ha
Chemical	-	4.4m Ushs./ha
Biological	-	2.5m Ushs./ha

Mobilisation of resources led to slow pace of procurement of mechanical systems of weed removal.

Rate of multiplication of bioagents used in biological control is apparently slow but this approach offers the best long-term control strategy that is cost effective and environmentally friendly.

Public antipathy with respect to herbicide application despite scientific evidence to the contrary. In effect, a plaint to restrain the Government from spraying the weed with any herbicide has already been served on the Attorney General.

7. Conclusion

Water Hyacinth is already causing detrimental impacts to our aquatic environments and hindering the use of our valuable water resources. Efforts to control the plant are already underway and hence the need to proceed as prudently as possible taking account of existing information and opportunities.

ANNEX I/1

ERADICATION OF WATER HYACINTH PROJECT AG (35) A

ACTIVITY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	RESPONSIBLE
1.0 PRE-IMPLEMENTATION													
1.1 Environmental Assessment	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX						WHU/AU/NEMA
1.2 Complete Chemical Ver. Study	XXXXX	XXXXX	XXXXX	XXXXX	X								NARO/CVSC
1.3 Procure Tools for Manual Removal (Communities) - Japan	XXXXX	XXXX			XXXXX	XXXXX	XXXX						WHU/NEXU/ CROWN AGENTS
1.4 Issue Tender - Design and Constructn. of Barriers at Kagera, Owen Falls & W/Works				XXXXX	XXXXX	XXXXX	XXXX						WHU/UEB/NW&SC/AU
1.5 Receive & Commission Weed Harvesters (2 Sets) -Neth			XXXX										WHU
1.6 Procure Weed Harvesters and Commission (Japan)	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX				CROWN AGENTS/WHU
1.7 Obtain Regional Clearence for Herbicide Application							XXXXX	XXXX					MFA/WHU/MAAIF
1.8 Evaluate Tenders & Award (1.4)							XXXX						WHU/UEB/NW&SC + CTB
1.9 Recruit National Consultants (UNDP)					XXXXX	XXXXX	XXXX						NEXU/WHU/UNDP

WHU - Water Hyacinth Unit
NEMA - National Environmental Management Agency
NEXU - National Execution Unit
UEB - Uganda Electricity Board

MFA - Ministry of Foreign Affairs
FAO - Food and Agriculture Organisation
NW&SC - National Water & Sewerage Corporation
CTB - Central Tender Board

ANNEX I/2

ERADICATION OF WATER HYACINTH PROJECT AG (35) A

ACTIVITY (cont.)	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	RESPONSIBLE
2.0 IMPLEMENTATION:													
2.1 Distribute Hand Tools to M'ska Mukono & Iganga Dist. (Japan)							XXXX	XXXX	XXXX				WHU
2.2 Distribute hand tools to 20 other Districts (UNDP)								XXXX	XXXX	XXXX			WHU
2.3 Administer Herbicides to Selected targets (low risk) Nationwide (if approved)										XXXX	XXXX	XXXX	WHU/CVSC/AU
2.4 Supervise Control Operations Nationwide	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	WHU/AU
2.5 Mechanical Control				XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
2.6 Mass rear and introduce Bettles in L. Victoria and Kagera river							XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	LVEMP/NAARI/WHU
3.0 MONTORING & EVALUATION													
3.1 Situation & Management Report			XXXX			XXXX			XXXX			XXXX	WHU/AU/NTCWH
3.2 W/Shops (Regional & National)								X X				X X	WHU/AU

CVSC - Chemical Verification Sub-Committee
AU - Aquatics Unlimited
NTCWH - National Technical Committee on Water Hyacinth Control
CTA - Chief Technical Advisor